

opportunity to submit “written data, views, or arguments” regarding a proposed rule. 5 U.S.C. 553(c); 15 U.S.C. 2058(d)(2). The NPR invited such written comments. In addition, section 9 of the CPSA requires the Commission to provide interested parties “an opportunity for oral presentation of data, views, or arguments.” 15 U.S.C. 2058(d)(2). The Commission must keep a transcript of such oral presentations. *Id.* In accordance with this requirement, the Commission is providing a forum for oral presentations concerning the proposed standard for residential gas furnaces and boilers.

To request the opportunity to make an oral presentation, see the information under the **DATES** and **ADDRESSES** sections of this notice. Participants should limit their presentations to approximately 10 minutes, excluding time for questions from the Commission or staff. To avoid duplicate presentations, groups should designate a spokesperson, and the Commission reserves the right to limit presentation times or impose further restrictions, as necessary.

Alberta E. Mills,

Secretary, Consumer Product Safety Commission.

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 141

[EPA-HQ-OW-2023-0469; FRL-10857-04-OW]

Unregulated Contaminant Monitoring Rule; Methods Request and Webinar

AGENCY: Environmental Protection Agency (EPA).

ACTION: Request for public comment and notice of a public meeting.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is requesting public input on drinking water analytical methods for emerging contaminants in drinking water, particularly those listed on the agency’s Fifth Contaminant Candidate List (CCL 5), that might support monitoring under the Unregulated Contaminant Monitoring Rule. This notice describes published drinking water analytical methods and EPA drinking water methods currently in development for the CCL and other emerging contaminants, with an expectation that some of these methods will support the sixth Unregulated Contaminant

Monitoring Rule (UCMR 6) and/or other future cycles of the UCMR program.

The agency is also announcing a virtual public meeting (via webinar) to discuss potential approaches to developing UCMR 6. The webinar will discuss the following: drinking water analytical methods and contaminants being considered, UCMR 6 sampling design, laboratory approval, and other potential aspects of the monitoring approach. The agenda will include time for brief remarks by participants who pre-register.

DATES: Comments must be received on or before April 8, 2024. *Public meeting:* The EPA will host a webinar regarding UCMR 6 development on April 17, 2024 and April 18, 2024. The same material will be presented twice. Please refer to the **SUPPLEMENTARY INFORMATION** section for additional information on the webinar.

ADDRESSES: The agency invites comments on analytical methods for emerging contaminants in drinking water, particularly those listed on CCL 5, to aid in the EPA’s consideration of methods to support UCMR monitoring. Comments should refer to Docket ID No. EPA-HQ-OW-2023-0469 and may be submitted by any of the following options:

- *Federal eRulemaking Portal:*

<https://www.regulations.gov/> (preferred). Follow the online instructions for submitting comments.

- *Mail:* U.S. Environmental

Protection Agency, EPA Docket Center, Office of Ground Water and Drinking Water Docket, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.

- *Hand Delivery or Courier:* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center’s hours of operations are 8:30 a.m. to 4:30 p.m., Monday through Friday (except Federal Holidays).

Instructions: All material submitted must include the Docket ID for this rulemaking. Comments received by the EPA (regardless of how they are submitted) may be posted without change to <https://www.regulations.gov/>, including any personal information provided. For detailed instructions on sending comments, see the “Public Participation” heading of the **SUPPLEMENTARY INFORMATION** section of this document.

Registration information for the UCMR 6 “pre-proposal” webinar can be found at <https://www.epa.gov/dwucmr/unregulated-contaminant-monitoring-rule-ucmr-meetings-and-materials>. The webinars will begin at 11:00 a.m.

eastern time and will conclude at 5:00 p.m. eastern time on the scheduled dates. Refer to the “Public Participation” heading of the **SUPPLEMENTARY INFORMATION** section below for additional information if you would like to sign up to make remarks during the webinar.

FOR FURTHER INFORMATION CONTACT:

Brenda Bowden, Standards and Risk Management Division, Office of Ground Water and Drinking Water (MS 140), Environmental Protection Agency, 26 West Martin Luther King Drive, Cincinnati, OH 45268; telephone number: (513) 569-7961; or email address: bowden.brenda@epa.gov; or Will Adams, Standards and Risk Management Division, Office of Ground Water and Drinking Water (MS 140), Environmental Protection Agency, 26 West Martin Luther King Drive, Cincinnati, OH 45268; telephone number: (513) 569-7656; or email address: adams.william@epa.gov.

SUPPLEMENTARY INFORMATION:

Table of Contents

- I. Public Participation
 - A. Written Comments on Drinking Water Analytical Methods for Emerging Contaminants
 - B. Participation in UCMR 6 Pre-Proposal Webinar
- II. General Information
 - A. Does this action apply to me?
 - B. How does the EPA establish health standards for emerging contaminants in drinking water under the Safe Drinking Water Act?
 - C. Why is the EPA requesting analytical method information on unregulated contaminants in drinking water?
 - D. What is the basis for this action?
- III. Background
 - A. What is the status of the drinking water analytical methods for contaminants on the CCL 5?
 - B. What drinking water analytical methods are being developed by the EPA to address contaminants on CCL 5?
 1. Draft EPA Method(s) for PFAS.
 2. Draft EPA Method 562—Determination of selected pesticides in drinking water by solid phase extraction and liquid chromatography/tandem mass spectrometry (LC/MS/MS).
 3. Draft EPA Method Purgeable Organics—Measurement of purgeable organic compounds in water by capillary column gas chromatography/mass spectrometry (GC/MS). This method is expected to support the analysis of drinking water for 1,2,3-trichloropropane (TCP) and other purgeable organic compounds. The target contaminants for this method are shown in Exhibit 7.
 4. Draft EPA Method Legionella—Legionella spp. and Legionella pneumophila quantitative polymerase chain reaction (qPCR) detection.
 5. Draft EPA Method Mycobacterium—Mycobacterium abscessus culture

- recovery with matrix-assisted laser desorption/ionization mass spectrometry (MALDI-MS).
6. Draft EPA Method Mycobacterium qPCR—Mycobacterium avium and Mycobacterium intracellulare quantitative polymerase chain reaction (qPCR) detection.
- C. What other drinking water analytical methods are being considered by the EPA to address emerging contaminants?
1. Draft EPA Method EOF—Screening method for the determination of extractable organic fluorine (EOF) in drinking water by anion exchange solid phase extraction and combustion ion chromatography (CIC).
2. Draft EPA Method Microplastics—Analysis of microplastics in drinking water using spectroscopic instrumentation.
- D. What information should the public provide when submitting comments about drinking water analytical methods for CCL 5 and other emerging contaminants?

IV. References

Abbreviations and Acronyms

µm Micrometer

11Cl-PF3OUdS 11-chloroheptafluoro-3-oxaundecane-1-sulfonic Acid

4:2F7S 1H,1H, 2H, 2H-perfluorohexane Sulfonic Acid

6:2F7S 1H,1H, 2H, 2H-perfluorooctane Sulfonic Acid

8:2F7S 1H,1H, 2H, 2H-perfluorodecane Sulfonic Acid

9Cl-PF3ONS 9-chlorohexadecafluoro-3-oxanonane-1-sulfonic Acid

ADONA 4,8-dioxa-3H-perfluorononanoic Acid

AOF Adsorbable Organic Fluorine

ASTM ASTM International

BCAA Bromochloroacetic Acid

BCIM Bromochloroiodomethane

BDCAA Bromodichloroacetic Acid

BDCNM Bromodichloronitromethane

BDIM Bromodiodomethane

BFB 4-bromofluorobenzene

CASRN Chemical Abstracts Service Registry Number

CBI Confidential Business Information

CCL Contaminant Candidate List

CDIM Chlorodiodomethane

CFR Code of Federal Regulations

CIC Combustion Ion Chromatography

Cq Quantification Cycle

CWS Community Water System

DBAN Dibromoacetone

DBCAA Dibromochloroacetic Acid

DBCNM Dibromochloronitromethane

DBIM Dibromodiodomethane

DBP Disinfection Byproduct

DCAN Dichloroacetone

DCIM Dichlorodiodomethane

DI Deionized Water

DNA Deoxyribonucleic Acid

DTXSID Distributed Structure Searchable Toxicity Substance Identifiers

EOF Extractable Organic Fluorine

EPA U.S. Environmental Protection Agency

FEM Forum on Environmental Measurement

FR Federal Register

FTIR Fourier Transform Infrared

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

HFPO-DA Hexafluoropropylene Oxide Dimer Acid

ISO or ISO/TS International Organization for Standardization

LC-MS/MS or LC/MS/MS Liquid Chromatography/Tandem Mass Spectrometry

LDIR Laser Direct Infrared

Leg16S *Legionella* Species

Lp16S *Legionella pneumophila*

MALDI-MS Matrix-assisted Laser Desorption/Ionization Mass Spectrometry

MBC Carbendazim

MIP *Legionella pneumophila*

mL Milliliter

mm Millimeter

MTBE Methyl Tert-butyl Ether

NAICS North American Industry Classification System

NCOD National Contaminant Occurrence Database

NDBA Nitrosodibutylamine

NDEA N-Nitrosodiethylamine

NDMA N-Nitrosodimethylamine

NDPA N-Nitrosodi-n-propylamine

NDPhA N-Nitrosodiphenylamine

NEtFOSAA N-ethyl Perfluorooctanesulfonamidoacetic Acid

NFDHA Nonafluoro-3,6-dioxaheptanoic Acid

ng/L Nanogram per Liter

NMeFOSAA N-methyl Perfluorooctanesulfonamidoacetic Acid

NPYR Nitrosopyrrolidine

NTM Nontuberculous Mycobacteria

NTNCWS Non-Transient Non-Community Water System

OGWDW Office of Ground Water and Drinking Water

PBI Proprietary Business Information

PFAS Per- and Polyfluoroalkyl Substances

PFBA Perfluorobutanoic Acid

PFBS Perfluorobutanesulfonic Acid

PFDA Perfluorodecanoic Acid

PFDaA Perfluorododecanoic Acid

PFEESA Perfluoro(2-ethoxyethane) Sulfonic Acid

PFHpA Perfluoroheptanoic Acid

PFHpS Perfluoroheptanesulfonic Acid

PFHxA Perfluorohexanoic Acid

PFHxS Perfluorohexanesulfonic Acid

PFMBA Perfluoro-4-methoxybutanoic acid

PFMPA Perfluoro-3-methoxypropanoic Acid

PFNA Perfluorononanoic Acid

PFOA Perfluorooctanoic Acid

PFOS Perfluorooctanesulfonic Acid

PFPeA Perfluoropentanoic Acid

PFPeS Perfluoropentanesulfonic Acid

PFTA Perfluorotetradecanoic Acid

PFTTrDA Perfluorotridecanoic Acid

PFUnA Perfluoroundecanoic Acid

PTFE Polytetrafluoroethylene

PWS Public Water System

QC Quality Control

qPCR Quantitative Polymerase Chain Reaction

SDWA Safe Drinking Water Act

SM Standard Methods for the Examination of Water and Wastewater

SPE Solid Phase Extraction

SRMD Standards and Risk Management Division

TBAA Tribromoacetic Acid

TCEP Tris(2-chloroethyl) Phosphate

TCNM Chloropicrin (trichloronitromethane)

TCP Trichloropropane

TIM Iodoform (triiodomethane)

UCMR Unregulated Contaminant Monitoring Rule

VCSB Voluntary Consensus Standards Board

I. Public Participation

A. Written Comments on Drinking Water Analytical Methods for Emerging Contaminants

Submit your comments on drinking water analytical methods for emerging contaminants, particularly those listed in this **Federal Register** notice, identified by Docket ID No. EPA-HQ-OW-2023-0469, at <https://www.regulations.gov> (preferred), or using one of the other options identified in the **ADDRESSES** section. Once submitted, comments cannot be edited or removed from the docket. The EPA may publish any comment received to its public docket. Do not submit any information to the EPA via <https://www.regulations.gov> that you consider to be Confidential Business Information (CBI), Proprietary Business Information (PBI), or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you want to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the web, cloud, or other file sharing system). Please visit <https://www.epa.gov/dockets/commenting-epa-dockets> for additional submission methods; the full EPA public comment policy; information about CBI, PBI, or multimedia submissions; and general guidance on making effective comments.

B. Participation in UCMR 6 Pre-Proposal Webinar

All who want to attend the webinar, please refer to the **SUMMARY** section for instructions on webinar registration. For those who want to make remarks at the webinar, the EPA is scheduling speakers. To sign up to speak, please use the online registration form available at <https://www.epa.gov/dwucmr/unregulated-contaminant-monitoring-rule-ucmr-meetings-and-materials> or contact the EPA's support contractor, Cadmus, at UCMRWebinar@cadmusgroup.com. The last day to pre-register to speak at the webinar is April

9, 2024. On April 16, (one day prior), the EPA will post an agenda that will identify scheduled speakers at: <https://www.epa.gov/dwucmr/unregulated-contaminant-monitoring-rule-ucmr-meetings-and-materials>. If there is additional time for public speakers after scheduling those who pre-registered, EPA will take requests during the webinar via the chat box. The EPA will accommodate requests to speak (via pre-registration and during the webinar) in the order received and as time permits.

The agency’s current plan is to provide each speaker with ten minutes. The EPA may adjust this time depending on the number of organizations that register to speak. The agency asks that only one person present on behalf of an organization.

The EPA encourages commenters to provide the agency with an advance copy of their remarks by emailing them to UCMRWebinar@cadmusgroup.com. The EPA may ask and answer clarifying questions during the webinar but will generally not respond to the remarks made by speakers during the webinar.

Please note that any updates to the webinar plan will be posted to <https://www.epa.gov/dwucmr/unregulated-contaminant-monitoring-rule-ucmr-meetings-and-materials> and will be emailed to those who register to participate. The EPA does not intend to publish another document in the **Federal Register** announcing updates, if any. If you require the services of an interpreter or special accommodations, please identify your needs at least one

week in advance as part of your registration.

II. General Information

A. Does this action apply to me?

This notice invites comments on drinking water analytical methods and is directed to those interested in or involved with developing analytical methods for unregulated contaminants in drinking water. It may also be of particular interest to laboratories that conduct chemical or microbiological testing for drinking water contaminants, including testing in support of the UCMR program.

This notice also announces a webinar to discuss potential approaches to developing UCMR 6. This notice does not impose any requirements.

Category	Examples of potentially regulated entities	NAICS *
State, local, & Tribal governments.	State, local, and Tribal governments that analyze water samples on behalf of PWSs required to conduct such analysis; State, local, and Tribal governments that directly operate Community Water Systems (CWSs) and Non-Transient Non-Community Water Systems (NTNCWSs) required to monitor.	924110
Industry	Private operators of CWSs and NTNCWSs required to monitor	221310
Municipalities	Municipal operators of CWSs and NTNCWSs required to monitor	924110
Laboratories	Laboratories conducting analysis	541380

* NAICS = North American Industry Classification System

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. This table includes the types of entities that the EPA is now aware could potentially be affected by this action. Other types of entities not listed could also be affected. To determine whether your entity is affected by this action, you should carefully examine the applicability criteria found in Title 40 in the *Code of Federal Regulations* (CFR) at 40 CFR 141.2 and 141.3, and the applicability criteria found in 40 CFR 141.40(a)(1) and (2). If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

B. How does the EPA establish health standards for emerging contaminants in drinking water under the Safe Drinking Water Act?

Under the 1996 amendments to the Safe Drinking Water Act (SDWA), Congress established a multi-step, risk-based approach for determining which contaminants could become subject to drinking water standards. The EPA is required to publish a Contaminant Candidate List (CCL) every five years that identifies contaminants that are not subject to any proposed or promulgated drinking water regulations, are known

or anticipated to occur in Public Water Systems (PWSs), and may require future regulation under SDWA. The EPA must also determine whether or not to regulate at least five contaminants from the CCL in a separate process called Regulatory Determinations. Information on these processes can be found at: <https://www.epa.gov/ccl>.

Per SDWA, the EPA implements section 1445(a)(2), Monitoring Program for Unregulated Contaminants. The EPA requires that PWSs monitor for a new set of unregulated contaminants every five years to generate occurrence data in support of the agency’s CCL and Regulatory Determination processes. The EPA must vary the frequency and schedule for monitoring based on the number of people served, the source water, and the contaminants likely to be found. The data collected through the UCMR program are made available to the public through the National Contaminant Occurrence Database (NCOD) for drinking water. UCMR results can be viewed by the public via NCOD (<https://www.epa.gov/sdwa/national-contaminant-occurrence-database-ncod>) or via the UCMR web page at: <https://www.epa.gov/dwucmr>.

C. Why is the EPA requesting analytical method information on unregulated contaminants in drinking water?

Analytical methods are essential to gathering occurrence data under the UCMR program. Robust analytical methods with sufficient sensitivity, accuracy, and precision are needed.

D. What is the basis for this action?

This notice provides the public with the EPA’s assessment of published drinking water analytical methods and methods in development for emerging contaminants, particularly those focusing on the CCL 5. The EPA is seeking public comments on method development to reach a broader audience and provide an opportunity to improve public participation. Separate public meetings on method development have not been well attended in the past, and this **Federal Register** notice enables those who cannot participate in the meeting to provide input.

This notice also announces webinars in April 2024 that will allow for early engagement in the agency’s development of UCMR 6.

III. Background

A. What is the status of the drinking water analytical methods for contaminants on the CCL 5?

Exhibits 1–5 list the contaminants on the final CCL 5 in the **Federal Register** published November 14, 2022 (87 FR 68060) (USEPA, 2022b). The current status of drinking water analytical methods from the EPA and voluntary consensus standards bodies (VCSBs)

such as, ASTM International (ASTM), Standard Methods (SM), and International Organization for Standardization (ISO), are included in this notice. The ASTM, SM, and ISO methods listed in Exhibits 1–5 may or may not contain the standards and quality control (QC) requirements deemed necessary by the agency and may need to be adapted to support UCMR monitoring. Exhibits 6–10 list

methods in development by the EPA for contaminants from CCL 5 that do not currently have drinking water analytical methods. The EPA recognizes that there may be other entities developing drinking water analytical methods and encourages commenters to make the agency aware of them. Please submit comments to the EPA following the process described in section III.D of this notice.

EXHIBIT 1—CCL 5 CHEMICAL CONTAMINANTS/GROUPS AND ASSOCIATED DRINKING WATER ANALYTICAL METHODS

Chemical name	CASRN ¹	DTXSID ²	Drinking water method(s) ³
1,2,3-Trichloropropane	96–18–4	DTXSID9021390	In Development, EPA 502.2, EPA 504.1, EPA 524.2, EPA 524.3, EPA 524.4, EPA 551.1, ASTM D5790–18, SM 6200 B, SM 6200 C.
1,4-Dioxane	123–91–1	DTXSID4020533	EPA 522, EPA 541.
17-alpha ethynyl estradiol	57–63–6	DTXSID5020576	EPA 539.
2,4-Dinitrophenol	51–28–5	DTXSID0020523	EPA 528.
2-Aminotoluene	95–53–4	DTXSID1026164	EPA 530.
2-Hydroxyatrazine	2163–68–0	DTXSID6037807	Research Needed.
6-Chloro-1,3,5-triazine-2,4-diamine	3397–62–4	DTXSID1037806	Research Needed.
Acephate	30560–19–1	DTXSID8023846	EPA 538.
Acrolein	107–02–8	DTXSID5020023	Research Needed.
alpha-Hexachlorocyclohexane	319–84–6	DTXSID2020684	EPA 508, EPA 508.1, EPA 525.2, EPA 525.3.
Anthraquinone	84–65–1	DTXSID3020095	Research Needed.
Bensulide	741–58–2	DTXSID9032329	EPA 540, EPA 543.
Bisphenol A	80–05–7	DTXSID7020182	SM 6810 B.
Boron	7440–42–8	DTXSID3023922	EPA 200.5, EPA 200.7, SM 3120 B, SM 4500-B B, SM 4500-B C.
Bromoxynil	1689–84–5	DTXSID3022162	In Development.
Carbaryl	63–25–2	DTXSID9020247	EPA 531.1, EPA 531.2, ASTM D5315–04, SM 6610 B.
Carbendazim (MBC)	10605–21–7	DTXSID4024729	In Development.
Chlordecone (Kepone)	143–50–0	DTXSID1020770	EPA 527*, In Development.
Chlorpyrifos	2921–88–2	DTXSID4020458	EPA 525.2, EPA 525.3, EPA 527, EPA 600/R–16/114.
Cobalt	7440–48–4	DTXSID1031040	EPA 200.7, EPA 200.8, EPA 200.9, ASTM D3558–15 A, ASTM D3558–15 B, SM 3111 B, SM 3111 C, SM 3113 B, SM 3120 B.
Cyanotoxins ^{4,5}	Multiple	Multiple	See Exhibit 2.
Desethylatrazine	6190–65–4	DTXSID5037494	EPA 523, EPA 536.
Desisopropyl atrazine	1007–28–9	DTXSID0037495	EPA 523, EPA 536.
Desvenlafaxine	93413–62–8	DTXSID40869118	Research Needed.
Diazinon	333–41–5	DTXSID9020407	EPA 526.
Dicrotophos	141–66–2	DTXSID9023914	EPA 538, EPA 600/R–16/114.
Dieldrin	60–57–1	DTXSID9020453	EPA 505, EPA 508, EPA 508.1, EPA 525.2, EPA 525.3, ASTM D5175–91.
Dimethoate	60–51–5	DTXSID7020479	EPA 527.
Disinfection byproducts (DBPs) ^{4,6}	Multiple	Multiple	See Exhibit 3.
Diuron	330–54–1	DTXSID0020446	EPA 532.
Ethalfuralin	55283–68–6	DTXSID8032386	Research Needed.
Ethoprop	13194–48–4	DTXSID4032611	EPA 507, EPA 525.2, EPA 525.3.
Fipronil	120068–37–3	DTXSID4034609	In Development.
Fluconazole	86386–73–4	DTXSID3020627	Research Needed.
Flufenacet	142459–58–3	DTXSID2032552	In Development.
Flumeturon	2164–17–2	DTXSID8020628	EPA 532.
Iprodione	36734–19–7	DTXSID3024154	In Development.
Lithium	7439–93–2	DTXSID5036761	EPA 200.7, ASTM D1976–20, SM 3111 B, SM 3120 B, SM 3500-Li B.
Malathion	121–75–5	DTXSID4020791	EPA 527.
Manganese	7439–96–5	DTXSID2024169	EPA 200.5, EPA 200.7, EPA 200.8, EPA 200.9, SM 3111 B, SM 3111 C, SM 3113 B, SM 3120 B, SM 3500-Mn B.
Methomyl	16752–77–5	DTXSID1022267	EPA 531.1, EPA 531.2, EPA 540, ASTM D5315–04, ASTM D7645–23, SM 6610 B.
Methyl tert-butyl ether (MTBE)	1634–04–4	DTXSID3020833	EPA 524.2, EPA 524.3, EPA 524.4, ASTM D5790–18, SM 6200 B, SM 6200 C.
Methylmercury	22967–92–6	DTXSID9024198	Research Needed.
Molybdenum	7439–98–7	DTXSID1024207	EPA 200.7, EPA 200.8, SM 3111 D, SM 3113 B, SM 3120 B.
Nonylphenol ⁷	25154–52–3	DTXSID3021857	EPA 559.
Norflurazon	27314–13–2	DTXSID8024234	EPA 507, EPA 525.2, EPA 525.3, EPA 527.*
Oxyfluorfen	42874–03–3	DTXSID7024241	EPA 525.3.

**EXHIBIT 1—CCL 5 CHEMICAL CONTAMINANTS/GROUPS AND ASSOCIATED DRINKING WATER ANALYTICAL METHODS—
Continued**

Chemical name	CASRN ¹	DTXSID ²	Drinking water method(s) ³
Per- and polyfluoroalkyl substances (PFAS) ^{4,8}	Multiple	Multiple	See Exhibit 4.
Permethrin	52645–53–1	DTXSID8022292	EPA 508, EPA 508.1, EPA 525.2, EPA 525.3.
Phorate	298–02–2	DTXSID4032459	EPA 525.3, EPA 600/R–16/114.
Phosmet	732–11–6	DTXSID5024261	Research Needed.
Phostebupirim	96182–53–5	DTXSID1032482	Research Needed.
Profenofos	41198–08–7	DTXSID3032464	EPA 525.3.
Propachlor	1918–16–7	DTXSID4024274	EPA 508, EPA 508.1, EPA 525.2, EPA 525.3.
Propanil	709–98–8	DTXSID8022111	EPA 532.
Propargite	2312–35–8	DTXSID4024276	Research Needed.
Propazine	139–40–2	DTXSID3021196	EPA 507, EPA 523, EPA 525.2, EPA 525.3, EPA 527, EPA 536.
Propoxur	114–26–1	DTXSID7021948	EPA 531.1, EPA 531.2, ASTM D5315–04, SM 6610 B.
Quinoline	91–22–5	DTXSID1021798	EPA 530, EPA 538.
Tebuconazole	107534–96–3	DTXSID9032113	EPA 525.3, EPA 540, EPA 543.
Terbufos	13071–79–9	DTXSID2022254	EPA 526.
Thiamethoxam	153719–23–4	DTXSID2034962	In Development.
Tri-allate	2303–17–5	DTXSID5024344	Research Needed.
Tribufos	78–48–8	DTXSID1024174	EPA 525.3.
Tributyl phosphate	126–73–8	DTXSID3021986	Research Needed.
Trimethylbenzene (1,2,4-)	95–63–6	DTXSID6021402	EPA 502.2, EPA 524.2, EPA 524.3, EPA 524.4, ASTM D5790–18, SM 6200 B, SM 6200 C.
Tris(2-chloroethyl) phosphate (TCEP)	115–96–8	DTXSID5021411	Research Needed.
Tungsten	7440–33–7	DTXSID8052481	Research Needed.
Vanadium	7440–62–2	DTXSID2040282	EPA 200.5, EPA 200.7, EPA 200.8, SM 3111 D, SM 3120 B, SM 3500-V B.

¹ Chemical Abstracts Service Registry Number (CASRN) is a unique identifier assigned by the Chemical Abstracts Service (a division of the American Chemical Society) to every chemical substance (organic and inorganic compounds, polymers, elements, nuclear particles, etc.) in the open scientific literature. It contains up to 10 digits, separated by hyphens into three parts.

² Distributed Structure Searchable Toxicity Substance Identifiers (DTXSID) is a unique substance identifier used in EPA's CompTox Chemicals database, where a substance can be any single chemical, mixture, or polymer.

³ Published methods are listed by EPA number or VCSB number. Methods in development by the EPA, or for which research is still needed, are also identified.

⁴ EPA's approach to listing cyanotoxins, DBPs, and PFAS as groups on CCL 5 as opposed to listing them as individual contaminants limits duplication of agency efforts, such as data gathering, analyses and evaluations. Listing these three chemical groups on the CCL 5 does not necessarily mean that EPA will make subsequent regulatory decisions for the entire group.

⁵ As defined in CCL 5, toxins naturally produced and released by some species of cyanobacteria (also known as "blue-green algae"). The group of cyanotoxins includes, but is not limited to: anatoxin-a, cylindrospermopsin, microcystins, and saxitoxin as shown in Exhibit 2.

⁶ This CCL 5 group includes 23 unregulated DBPs as shown in Exhibit 3.

⁷ The CCL 5 lists a general nonylphenol with a CASRN of 25154–52–3. EPA Method 559 analyzes nonylphenol with a CASRN of 84852–15–3 and reports technical nonylphenol, comprised mostly of branched C9-alkyl phenols, and not linear nonylphenol (CASRN 104–40–5) which is a laboratory generated chemical not typically found in the environment.

⁸ The CCL 5 structural definition of per- and polyfluoroalkyl substances (PFAS) includes chemicals that contain at least one of these three structures as shown in Exhibit 4 (except for PFOA and PFOS which are already in the regulatory process):

1. R-(CF₂)-CF(R')R'', where both the CF₂ and CF moieties are saturated carbons, and none of the R groups can be hydrogen.

2. R-CF₂OCF₂-R', where both the CF₂ moieties are saturated carbons, and none of the R groups can be hydrogen.

3. CF₃C(CF₃)RR', where all the carbons are saturated, and none of the R groups can be hydrogen.

* EPA Method 527 indicates these specific contaminants may have potential complications.

The CCL 5 includes cyanotoxins as a group, including but not limited to the contaminants in Exhibit 2. The EPA recognizes there are other contaminants in this group such as, nodularin-R (which is not a microcystin), as well as, derivatives and congeners of anatoxin-a, cylindrospermopsin, and saxitoxin (*e.g.*, homoanatoxin-a, deoxy-cylindrospermopsin, and other paralytic shellfish poisons).

EXHIBIT 2—UNREGULATED CYANOTOXINS GROUP ON CCL 5 AND ASSOCIATED DRINKING WATER ANALYTICAL METHODS

[See Exhibit 1 footnote 4]

Chemical name	CASRN ¹	DTXSID ²	Drinking water method(s) ³
Anatoxin-a	64285–06–9	DTXSID50867064	EPA 545.
Cylindrospermopsin	143545–90–8	DTXSID2031083	EPA 545.
Saxitoxin	35523–89–8	DTXSID3074313	Research Needed.
Microcystins			
Microcystin LA	96180–79–9	DTXSID3031656	EPA 544.
Microcystin LR	101043–37–2	DTXSID3031654	EPA 544.
Microcystin LW	157622–02–1	DTXSID70891285	Research Needed.
Microcystin RR	111755–37–4	DTXSID40880085	EPA 544.

EXHIBIT 2—UNREGULATED CYANOTOXINS GROUP ON CCL 5 AND ASSOCIATED DRINKING WATER ANALYTICAL METHODS—
Continued

[See Exhibit 1 footnote 4]

Chemical name	CASRN ¹	DTXSID ²	Drinking water method(s) ³
Microcystin YR	101064-48-6	DTXSID00880086	EPA 544.

¹ Chemical Abstracts Service Registry Number (CASRN) is a unique identifier assigned by the Chemical Abstracts Service (a division of the American Chemical Society) to every chemical substance (organic and inorganic compounds, polymers, elements, nuclear particles, etc.) in the open scientific literature. It contains up to 10 digits, separated by hyphens into three parts.

² Distributed Structure Searchable Toxicity Substance Identifiers (DTXSID) is a unique substance identifier used in EPA's CompTox Chemicals database, where a substance can be any single chemical, mixture, or polymer.

³ Published methods are listed by EPA number or VCSB number. Methods in development by the EPA, or for which research is still needed, are also identified.

EXHIBIT 3—UNREGULATED DBP GROUP ON CCL 5 AND ASSOCIATED DRINKING WATER ANALYTICAL METHODS

[See Exhibit 1 footnote 5]

Chemical name	CASRN ¹	DTXSID ²	Drinking water method(s) ³
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Haloacetic Acids

Bromochloroacetic acid (BCAA)	5589-96-8	DTXSID4024642	EPA 552.1, EPA 552.2, EPA 552.3, EPA 557, SM 6251 B.
Bromodichloroacetic acid (BDCAA)	71133-14-7	DTXSID4024644	EPA 552.2, EPA 552.3, EPA 557.
Dibromochloroacetic acid (DBCAA)	5278-95-5	DTXSID3031151	EPA 552.2, EPA 552.3, EPA 557.
Tribromoacetic acid (TBAA)	75-96-7	DTXSID6021668	EPA 552.2, EPA 552.3, EPA 557.

Haloacetonitriles

Dichloroacetonitrile (DCAN)	3018-12-0	DTXSID3021562	EPA 551.1.
Dibromoacetonitrile (DBAN)	3252-43-5	DTXSID3024940	EPA 551.1.

Halonitromethanes

Bromodichloronitromethane (BDCNM)	918-01-4	DTXSID4021509	Research Needed.
Chloropicrin (trichloronitromethane, TCNM)	76-06-2	DTXSID0020315	EPA 551.1.
Dibromochloronitromethane (DBCNM)	1184-89-0	DTXSID00152114	Research Needed.

Iodinated Trihalomethanes

Bromochloroiodomethane (BCIM)	34970-00-8	DTXSID9021502	Research Needed.
Bromodiiodomethane (BDIM)	557-95-9	DTXSID70204235	Research Needed.
Chlorodiiodomethane (CDIM)	638-73-3	DTXSID20213251	Research Needed.
Dibromoiodomethane (DBIM)	593-94-2	DTXSID60208040	Research Needed.
Dichloroiodomethane (DCIM)	594-04-7	DTXSID7021570	Research Needed.
Iodoform (triiodomethane, TIM)	75-47-8	DTXSID4020743	Research Needed.

Nitrosamines

Nitrosodibutylamine (NDBA)	924-16-3	DTXSID2021026	EPA 521, SM 6450 B, SM 6450 C.
N-Nitrosodiethylamine (NDEA)	55-18-5	DTXSID2021028	EPA 521, SM 6450 B, SM 6450 C.
N-Nitrosodimethylamine (NDMA)	62-75-9	DTXSID7021029	EPA 521, SM 6450 B, SM 6450 C.
N-Nitrosodi-n-propylamine (NDPA)	621-64-7	DTXSID6021032	EPA 521, SM 6450 B, SM 6450 C.
N-Nitrosodiphenylamine (NDPhA)	86-30-6	DTXSID6021030	Research Needed.
Nitrosopyrrolidine (NPYR)	930-55-2	DTXSID8021062	EPA 521, SM 6450 B, SM 6450 C.

Others

Chlorate	14866-68-3	DTXSID3073137	EPA 300.1, ASTM D6581-18, SM 4110 D.
Formaldehyde	50-00-0	DTXSID7020637	EPA 554, EPA 556.1, SM 6252 B.*

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² Distributed Structure Searchable Toxicity Substance Identifiers (DTXSID) is a unique substance identifier used in EPA's CompTox Chemicals database, where a substance can be any single chemical, mixture, or polymer.

³ Published methods are listed by EPA number or VCSB number. Methods in development by the EPA, or for which research is still needed, are also identified.

* SM 6252 B is in the 24th edition of SM titled as proposed.

The CCL 5 included PFAS as a group which includes thousands of PFAS

chemicals per the CCL 5 structural definition (USEPA, 2022b). Exhibit 4

lists the PFAS that EPA has available drinking water analytical methods. The

EPA recognizes that the PFAS in Exhibit 4 only captures a subset of the thousands of PFAS compounds encompassed in the CCL 5 structural definition (USEPA, 2023).

EXHIBIT 4—UNREGULATED PFAS GROUP WITH AVAILABLE DRINKING WATER ANALYTICAL METHODS

[See Exhibit 1 footnote 7]

Chemical name ¹	CASRN ²	DTXSID ³	Drinking water method(s) ⁴
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	763051–92–9	DTXSID40892507	EPA 533, EPA 537.1.
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	756426–58–1	DTXSID80892506	EPA 533, EPA 537.1.
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005–14–4	DTXSID40881350	EPA 533, EPA 537.1.
Hexafluoropropylene oxide dimer acid (HFPO–DA)	13252–13–6	DTXSID70880215	EPA 533, EPA 537.1.
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	151772–58–6	DTXSID30382063	EPA 533.
Perfluorobutanoic acid (PFBA)	375–22–4	DTXSID4059916	EPA 533.
Perfluorobutanesulfonic acid (PFBS)	375–73–5	DTXSID5030030	EPA 533, EPA 537.1.
1H,1H, 2H, 2H-perfluorodecane sulfonic acid (8:2FTS)	39108–34–4	DTXSID00192353	EPA 533.
Perfluorodecanoic acid (PFDA)	335–76–2	DTXSID3031860	EPA 533, EPA 537.1.
Perfluorododecanoic acid (PFDoA)	307–55–1	DTXSID8031861	EPA 533, EPA 537.1.
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	113507–82–7	DTXSID50379814	EPA 533.
Perfluoroheptanesulfonic acid (PFHpS)	375–92–8	DTXSID8059920	EPA 533.
Perfluoroheptanoic acid (PFHpA)	375–85–9	DTXSID1037303	EPA 533, EPA 537.1.
1H,1H, 2H, 2H-perfluorohexane sulfonic acid (4:2FTS)	757124–72–4	DTXSID30891564	EPA 533.
Perfluorohexanesulfonic acid (PFHxS)	355–46–4	DTXSID7040150	EPA 533, EPA 537.1.
Perfluorohexanoic acid (PFHxA)	307–24–4	DTXSID3031862	EPA 533, EPA 537.1.
Perfluoro-3-methoxypropanoic acid (PFMPA)	377–73–1	DTXSID70191136	EPA 533.
Perfluoro-4-methoxybutanoic acid (PFMBA)	863090–89–5	DTXSID60500450	EPA 533.
Perfluorononanoic acid (PFNA)	375–95–1	DTXSID8031863	EPA 533, EPA 537.1.
1H,1H, 2H, 2H-perfluorooctane sulfonic acid (6:2FTS)	27619–97–2	DTXSID6067331	EPA 533.
Perfluorooctanesulfonic acid (PFOS)	1763–23–1	DTXSID3031864	EPA 533, EPA 537.1.
Perfluorooctanoic acid (PFOA)	335–67–1	DTXSID8031865	EPA 533, EPA 537.1.
Perfluoropentanoic acid (PFPeA)	2706–90–3	DTXSID6062599	EPA 533.
Perfluoropentanesulfonic acid (PFPeS)	2706–91–4	DTXSID8062600	EPA 533.
Perfluoroundecanoic acid (PFUnA)	2058–94–8	DTXSID8047553	EPA 533, EPA 537.1.
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991–50–6	DTXSID5062760	EPA 537.1.
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355–31–9	DTXSID10624392	EPA 537.1.
Perfluorotetradecanoic acid (PFTA)	376–06–7	DTXSID3059921	EPA 537.1.
Perfluorotridecanoic acid (PFTTrDA)	72629–94–8	DTXSID90868151	EPA 537.1.

¹The CCL 5 structural definition of per- and polyfluoroalkyl substances (PFAS) includes chemicals that contain at least one of these three structures as shown in Exhibit 4 (except for PFOA and PFOS which are already in the regulatory process):

1. R-(CF2)-CF(R')R'', where both the CF2 and CF moieties are saturated carbons, and none of the R groups can be hydrogen.
2. R-CF2OCF2-R', where both the CF2 moieties are saturated carbons, and none of the R groups can be hydrogen.
3. CF3C(CF3)RR', where all the carbons are saturated, and none of the R groups can be hydrogen.

²Chemical Abstracts Service Registry Number (CASRN) is a unique identifier assigned by the Chemical Abstracts Service (a division of the American Chemical Society) to every chemical substance (organic and inorganic compounds, polymers, elements, nuclear particles, etc.) in the open scientific literature. It contains up to 10 digits, separated by hyphens into three parts.

³Distributed Structure Searchable Toxicity Substance Identifiers (DTXSID) is a unique substance identifier used in EPA's CompTox Chemicals database, where a substance can be any single chemical, mixture, or polymer.

⁴Published methods are listed by EPA number or VCSB number. Methods in development by the EPA, or for which research is still needed, are also identified.

EXHIBIT 5—UNREGULATED MICROBIAL CONTAMINANTS ON CCL 5 AND ASSOCIATED DRINKING WATER ANALYTICAL METHODS

Microorganism	Type of microorganism	Drinking water method(s) ¹
Adenovirus	Virus	Research Needed.
Caliciviruses	Virus	Research Needed.
<i>Campylobacter jejuni</i>	Bacteria	Research Needed.
<i>Escherichia coli</i> (O157)	Bacteria	Research Needed.
Enterovirus	Virus	EPA 1615.
<i>Helicobacter pylori</i>	Bacteria	Research Needed.
<i>Legionella pneumophila</i>	Bacteria	In Development, ASTM D8429–21*, ISO 11731:2017, ISO/TS 12869:2019.
<i>Mycobacterium abscessus</i>	Bacteria	In Development.
<i>Mycobacterium avium</i>	Bacteria	In Development.
<i>Naegleria fowleri</i>	Protozoa	SM 9750.**
<i>Pseudomonas aeruginosa</i>	Bacteria	ASTM D5246–19, SM 9213 E, SM 9213 F, SM 9213 G.
<i>Shigella sonnei</i>	Bacteria	Research Needed.

¹Published methods are listed by EPA number or VCSB number. Methods in development by the EPA, or for which research is still needed, are also identified.

* Commonly known as Legiolert® test.

** SM 9750 is in the 24th edition of SM titled as proposed.

B. What drinking water analytical methods are being developed by the EPA to address contaminants on CCL 5?

1. Draft EPA Method(s) for PFAS. The agency continues to conduct research and monitor advances and techniques that may improve our ability to measure PFAS. Preliminary studies have been performed looking at potential method development for PFAS contaminants that are not analyzed in EPA Methods 533 or 537.1. The EPA Methods 533 and 537.1 both address a wide variety of PFAS. These methods were developed focusing on the largest array of PFAS that were commercially available at the time (as certified

reference standards) and that could be analyzed while routinely meeting all method-specified quality control criteria (towards the goal of generating accurate and precise results in drinking water sample matrices). EPA is working to expand the method target analyte scope and is soliciting comment and supporting performance data from stakeholders that have conducted similar studies (e.g., incorporating PFAS with carbon chains less than or equal to three carbons and/or improvements in analytical processing times, such as employing direct injection techniques that could simplify or eliminate the solid-phase extraction step (USEPA,

2019b). EPA anticipates that such improvements would enhance laboratory capability and capacity. EPA invites comments on analytical improvements to Methods 533 and 537.1 or alternative techniques that could prove to be effective at measuring PFAS in drinking water.

2. Draft EPA Method 562—Determination of selected pesticides in drinking water by solid phase extraction and liquid chromatography/tandem mass spectrometry (LC/MS/MS).

The target contaminants for this method consist of the seven pesticides and three degradates shown in Exhibit 6.

EXHIBIT 6—TARGET CONTAMINANTS IN DRAFT EPA METHOD 562

Chemical name	CASRN ¹	DTXSID ²
Bromoxynil	1689–84–5	DTXSID3022162.
Carbendazim (MBC)	10605–21–7	DTXSID4024729
Chlordecone (Kepone)	143–50–0	DTXSID1020770
Clothianidin	210880–92–5	DTXSID2034465
Fipronil	120068–37–3	DTXSID4034609
Fipronil sulfide	120067–83–6	DTXSID50869644
Fipronil sulfone	120068–36–2	DTXSID6074750
Flufenacet	142459–58–3	DTXSID2032552
Iprodione	36734–19–7	DTXSID3024154
Thiamethoxam	153719–23–4	DTXSID2034962

¹ Chemical Abstracts Service Registry Number (CASRN) is a unique identifier assigned by the Chemical Abstracts Service (a division of the American Chemical Society) to every chemical substance (organic and inorganic compounds, polymers, elements, nuclear particles, etc.) in the open scientific literature. It contains up to 10 digits, separated by hyphens into three parts.

² Distributed Structure Searchable Toxicity Substance Identifiers (DTXSID) is a unique substance identifier used in EPA's CompTox Chemicals database, where a substance can be any single chemical, mixture, or polymer.

The aqueous samples are preserved with ascorbic acid to mitigate free chlorine disinfection and sodium bisulfate to inhibit microbial growth. Extraction efficiency is monitored by adding surrogate compounds to the aqueous samples prior to extraction. Chlordecone and iprodione are known to degrade in the presence of methanol (Bichon et al., 2015; Anisuzzaman et al., 2008); therefore, efforts to avoid the use of methanol were prioritized. Preliminary holding time studies support an aqueous holding time of 14 days and an extract holding time of 28 days. Solid phase extraction (SPE) using divinylbenzene sorbent is used to concentrate the contaminants from the aqueous sample. Additional research may be performed which may allow use

of other SPE sorbents provided performance requirements are met. The samples are fully loaded onto the SPE cartridge, followed by a deionized (DI) water bottle wash then an acetone bottle wash to elute the target contaminants. Following elution, nitrogen evaporation is used to reduce the extract. The extract is brought to final volume with an acetone and acetonitrile mixture. The target contaminants are separated using reversed phase liquid chromatography and detected using LC/MS/MS using both positive and negative electrospray ionization. Selected reaction monitoring is used to detect a product ion to maximize selectivity. Instrument variability is corrected using an internal standard.

The EPA invites comments to support development of this pesticide method. The agency is particularly interested in comments about additional SPE sorbents that provide contaminant recovery meeting the drinking water program's data quality objectives.

3. Draft EPA Method Purgeable Organics—Measurement of purgeable organic compounds in water by capillary column gas chromatography/mass spectrometry (GC/MS).

This method is expected to support the analysis of drinking water for 1,2,3-trichloropropane (TCP) and other purgeable organic compounds. The target contaminants for this method are shown in Exhibit 7.

EXHIBIT 7—TARGET CONTAMINANTS IN DRAFT EPA METHOD PURGEABLE ORGANICS

Chemical name	CASRN ¹	DTXSID ²
1,2-dibromo-3-chloropropane	96–12–8	DTXSID3020413
1,2-dibromoethane	106–93–4	DTXSID3020415
1,2,3-trichloropropane	96–18–4	DTXSID9021390
1,2,4-trimethylbenzene	95–63–6	DTXSID6021402

EXHIBIT 7—TARGET CONTAMINANTS IN DRAFT EPA METHOD PURGEABLE ORGANICS—Continued

Chemical name	CASRN ¹	DTXSID ²
Methyl-tert-butyl Ether	1634-04-4	DTXSID3020833

¹ Chemical Abstracts Service Registry Number (CASRN) is a unique identifier assigned by the Chemical Abstracts Service (a division of the American Chemical Society) to every chemical substance (organic and inorganic compounds, polymers, elements, nuclear particles, etc.) in the open scientific literature. It contains up to 10 digits, separated by hyphens into three parts.

² Distributed Structure Searchable Toxicity Substance Identifiers (DTXSID) is a unique substance identifier used in EPA's CompTox Chemicals database, where a substance can be any single chemical, mixture, or polymer.

EPA Methods 524.2, 524.3, and 524.4 are used to analyze a variety of organic compounds; however, this method in development is targeting the selected contaminants in Exhibit 9 at quantifiable levels lower than the EPA Methods 524.3 and 524.4 currently achieve (USEPA, 1995g; USEPA, 2009a; USEPA, 2013a). In the draft method, headspace-free samples are collected in amber glass vials with polytetrafluoroethylene (PTFE)-faced septa. Samples are dechlorinated with ascorbic acid and the pH is adjusted with maleic acid. A 5.0 milliliter (mL) or 25-mL aliquot of the sample is transferred to a glass sparging vessel along with appropriate amounts of internal standard and QC compounds. The method contaminants are purged from the water using helium or nitrogen and trapped on a sorbent material. The sample is then heated and backflushed with gas chromatography (GC) carrier gas to transfer the contaminants directly

into the gas chromatographic inlet. The inlet is operated in the split mode to achieve the desired desorb flow rates and further reduce water transmission. Contaminants are transferred onto a capillary GC column, which is temperature programmed to optimize the separation of method contaminants. Compounds eluting from the GC are directed into a mass spectrometer for detection and quantitation. The method contaminants are identified by comparing the acquired mass spectra and retention times to reference spectra and retention times. The concentration of each contaminant is calculated using the internal standard technique and response curves obtained via procedural calibration.

The draft method may differ from EPA Methods 524.2, 524.3, and 524.4 due to removing the requirement for a 4-bromofluorobenzene (BFB) tune as part of the GC/MS optimization and initial calibration, and instead

optimizing tuning to maximum ion transmission for the target contaminants of interest. EPA Methods 524.2, 524.3, and 524.4 require a BFB tune, and the draft method will allow optimizing tuning to maximum ion transmission for the target analytes in Exhibit 7. By optimizing conditions specifically for the target contaminants of interest, lower quantitation limits may be achieved. Other changes, such as adjusting the GC split ratio would also be optimized to focus on the specific set of contaminants listed in Exhibit 7.

The EPA invites comments to support development of this method. The agency is particularly interested in techniques to quantify 1,2,3-TCP at low levels (~5 nanograms per liter (ng/L)).

4. Draft EPA Method *Legionella*—*Legionella spp.* and *Legionella pneumophila* quantitative polymerase chain reaction (qPCR) detection.

The target contaminants for this method are shown in Exhibit 8.

EXHIBIT 8—TARGET CONTAMINANTS IN DRAFT EPA METHOD LEGIONELLA

Microorganism	Type of microorganism
<i>Legionella species</i> (Leg16S)	Bacteria.
<i>Legionella pneumophila</i> (MIP)	Bacteria.
<i>Legionella pneumophila</i> (Lp16S)	Bacteria.

For this method in development, one assay under consideration will detect all *Legionella* species (there are ~53 recognized species). There are two other assays under consideration for *Legionella pneumophila* detection. For this method, a one-liter sample is collected in a high-density polypropylene bottle containing sodium thiosulfate for dechlorination. The sample is vacuumed filtered through a 0.45 micrometer (µm) polycarbonate membrane. The captured microbial deoxyribonucleic acid (DNA) is extracted from the membrane. The extracted DNA is analyzed using three qPCR assays utilizing a qPCR instrument.

This method will detect and quantify the targeted microbe of interest. The method identifies the target bacteria using primer-probe specific to the microbe of interest, and the resulting qPCR gene product (DNA sequence) molecular weight is checked. The instrument will generate an amplification curve if the targeted bacteria is present in a sample. As the curve passes the 0.4 threshold, a quantification cycle (Cq) value is determined. The targeted bacteria DNA (Cq value) is then quantified using a standard curve generated from genomic DNA. The method contains other QC samples, including, positive controls such as, the standard curve and negative

controls, such as, internal controls, method blanks, extraction blanks, and non-template controls.

The EPA invites comments to support the development of a *Legionella spp.* and *Legionella pneumophila* method. The agency is specifically interested in information on environmental laboratory capabilities to perform this method.

5. Draft EPA Method *Mycobacterium*—*Mycobacterium abscessus* culture recovery with matrix-assisted laser desorption/ionization mass spectrometry (MALDI-MS).

The target contaminants for this method are shown in Exhibit 9.

EXHIBIT 9—TARGET CONTAMINANTS IN DRAFT EPA METHOD MYCOBACTERIUM

Microorganism	Type of microorganism
<i>Mycobacterium abscessus</i>	Bacteria.
<i>Mycobacterium mucogenicum</i> (potentially)	Bacteria.

This method is in early development. A one-liter sample is collected in a high-density polypropylene bottle containing sodium thiosulfate for dechlorination. The sample is decontaminated for 30 minutes with 0.4% cetylpyridinium chloride solution. Then, 500 mL of the decontaminated sample is vacuumed filtered through a 0.45 mm black, mixed cellulose membrane. The membrane with the captured bacteria is laid on top

of Middlebrook 7H11 agar plate. The plate is incubated at 37 °C for 7 days. The resulting colonies are chosen for matrix-assisted laser desorption/ionization mass spectrometry (MALDI-MS) identification.

The EPA invites comments to support development of this method. The agency is particularly interested in the following: (1) suggestions for preservation chemical to use; (2) input

on detection limits using MALDI-MS; (3) input on the sample volume needed; and (4) feedback regarding any experience with this technique.

6. Draft EPA Method *Mycobacterium* qPCR—*Mycobacterium avium* and *Mycobacterium intracellulare* quantitative polymerase chain reaction (qPCR) detection.

The target contaminants for this method are shown in Exhibit 10.

EXHIBIT 10—TARGET CONTAMINANTS IN DRAFT EPA METHOD MYCOBACTERIUM QPCR

Microorganism	Type of microorganism
<i>Mycobacterium avium</i>	Bacteria.
<i>Mycobacterium intracellulare</i>	Bacteria.

This method can distinguish between *Mycobacterium avium* and *Mycobacterium intracellulare* species. For this method, a one-liter sample is collected in a high-density polypropylene bottle containing sodium thiosulfate for dechlorination. The sample is vacuum-filtered through a 0.45 µm polycarbonate membrane. The captured microbial DNA is extracted from the membrane. The extracted DNA is analyzed using two qPCR assays utilizing a qPCR instrument.

This method will detect and quantify the targeted microbe of interest. The method identifies the target bacteria using primer-probe specific to the microbe of interest, and the resulting qPCR gene product (DNA sequence) molecular weight is checked. The instrument will generate an amplification curve if the targeted bacteria is present in a sample. As the curve passes the 0.4 threshold, a Cq value is determined. The targeted bacteria DNA (Cq value) is then quantified using a standard curve generated from genomic DNA. The method contains other QC samples, including positive controls such as the standard curve, and negative controls such as internal controls, method blanks, extraction blanks, and non-template controls. This method requires the collection of a 200 mL water sample.

The EPA invites comments to support development of this method. The agency is particularly interested in information on environmental laboratory capabilities to perform this method.

C. What other drinking water analytical methods are being considered by the EPA to address emerging contaminants?

1. Draft EPA Method EOF—Screening method for the determination of extractable organic fluorine (EOF) in drinking water by anion exchange solid phase extraction and combustion ion chromatography (CIC).

The target contaminant for this method is Extractable Organic Fluorine (EOF). Targeted PFAS drinking water methods currently only capture a small subset of the many PFAS known to exist. “Aggregate” methods (sometimes referred to as a “total PFAS” method) are designed to capture a larger portion of the PFAS than targeted methods are able to detect. The subject technique seeks to estimate the concentration of EOF in drinking water. It captures organofluorine compounds from PFAS and non-PFAS fluorinated substances that are retained using weak anion exchange SPE. The method has potential application for screening, recognizing that it will not measure fluorinated compounds individually, but as an aggregate sum of the fluorinated compounds captured on the sorbent. Notably, non-PFAS fluorinated compounds may also be accounted for in the reported value along with residual inorganic fluoride that is added to drinking water to prevent tooth decay.

For this EOF method in development by the EPA, the preservation scheme follows EPA Method 533, with the aqueous samples preserved with

ammonium acetate to sequester free chlorine to form chloramine. Additionally, the EOF method follows the EPA Method 533 holding time scheme set at 28 days.

The drinking water sample is concentrated using weak anion-exchange SPE. After passing the sample through the SPE cartridge, preserved reagent water is pulled through the cartridge, then aqueous ammonium hydroxide is used to wash the SPE cartridge to remove inorganic fluoride. A solution of ammonium hydroxide in methanol is used to elute the adsorbed compounds. The extract is evaporated to dryness and reconstituted in a methanol and water mixture. The entire extract is transferred to a ceramic boat and combusted at high temperature in the furnace of a combustion ion chromatography (CIC) instrument to break the carbon-fluorine bond. The released fluorine is absorbed in a water solution to form the fluoride ion. A portion of the fluoride solution is separated by ion chromatography using a potassium hydroxide-based eluent. External calibration is used to establish the retention time for fluoride and report the extractable organic fluorine as fluoride. The agency notes that aggregate techniques considered to-date do not have the same sensitivity as targeted techniques. The quantitation capabilities of the EOF technique, and the suitability of the technique for drinking water monitoring, continue to be evaluated.

The agency considered other aggregate methods, including an

adsorbable organic fluorine (AOF) procedure, such as draft EPA Method 1621 (USEPA, 2022a). In the AOF method, larger samples achieve better sensitivity. The agency notes that draft EPA Method 1621 does not retain short carbon PFAS within the data quality objective limits of 70–130%. In addition, draft EPA Method 1621 does not permit rinsing of the sample container, meaning hydrophobic PFAS may be lost to adsorption on the sample container. A method wash step removes inorganic fluoride up to 95%, but a trace amount of inorganic fluoride may remain because of the weak anion exchange sorbent.

The EPA invites comments to support development and consideration of aggregate PFAS measurement. The agency is particularly interested in the following: (1) techniques to extract or adsorb ultra short chain PFAS; (2) alternative ways to remove inorganic fluoride from aqueous drinking water samples prior to or during the extraction or adsorption for organic fluoride; (3) techniques to capture anionic, neutral and cationic PFAS in a single solid phase extraction procedure; and (4) techniques to improve the selectivity of the extraction process to reduce or eliminate retention of non-PFAS fluorinated compounds.

2. Draft EPA Method Microplastics—Analysis of microplastics in drinking water using spectroscopic instrumentation.

The target contaminant for this method is “microplastics.” Common spectroscopic libraries contain spectra for thousands of different polymers that can all be identified using these instruments. For this discussion, EPA’s water research definition of microplastics is particles ranging in size from 5 millimeters (mm) to 1 mm at <https://www.epa.gov/water-research/microplastics-research>.

The agency is in the early stages of developing a microplastics method and is gathering information about analytical approaches. The agency recognizes that voluntary consensus standards bodies (VCSBs) methods ASTM D8332–20 and ASTM D8333–20 are available. This section summarizes the currently available research. In developing the final method approach, the agency will seek to incorporate the latest advancements in microplastic research and analytical methodologies.

There are a variety of spectroscopic techniques that can be utilized for microplastic analysis, including fourier transform infrared (FTIR) spectroscopy, laser direct infrared (LDIR) spectroscopy, and Raman spectroscopy. The analytical instruments associated

with these techniques have more similarities than differences and all provide similar information to characterize microplastics, including size, shape, and polymer type of individual microplastics.

For all of the spectroscopy techniques examined by the agency, samples are stored at 4 degrees Celsius (Wong and Coffin, 2022) or have a maximum of one freeze and thaw cycle (ITRC, 2023). Depending on the requirements and capabilities of the analytical instrument, a variety of instrument filter types with different coatings and pore sizes have been used to collect microplastics from aqueous samples. For example, the LDIR imaging system uses gold-coated filters that are infrared-reflective. The California State Water Resources Control Board does not recommend density separation or digestion for drinking water samples (Wong and Coffin, 2022).

Spectroscopic methods only quantify the number of particles, not a mass of polymer, and can identify even a single particle on a filter, so the measurement capability is only related to the size of the particle. Many infrared and Raman-based instruments can identify particles with a minimum diameter of 20 microns and 1-micron, respectively. However, the minimum size for reliable identification on the widest range of instrument models should be considered as 50 microns for infrared-based instruments and 20 microns for Raman-based instruments. (Wong and Coffin, 2022).

The EPA invites comments to support the development of a microplastics method. The agency is specifically interested in comments that will help identify the changes to microplastics that happen as a result of reactions to environmental exposures (*i.e.*, sunlight, water, and temperature) and how these changes can affect reliable polymer identification.

D. What information should the public provide when submitting comments about drinking water analytical methods for CCL 5 and other emerging contaminants?

The EPA welcomes comments from the public regarding analytical methods for measuring emerging contaminants in drinking water. This includes methods already published by the agency or others, those under development by the agency or others, and those that should be considered for future development. The agency is particularly interested in methods that may be used to monitor drinking water for the contaminants published on final the CCL 5 (87 FR 68060, November 14, 2022 (USEPA,

2022b)). The agency encourages commenters to include their name, affiliation, phone number, mailing address, and email address. However, this information is not required, and comments can be submitted anonymously. When addressing non-EPA or voluntary consensus standards bodies (VCSBs) methods, comments should address the following, as applicable:

1. Specify the method name and describe, at least generally, the instrumentation upon which it relies.
2. Specify the status of the method (*e.g.*, fully-developed, nearing completion, early development).
3. Specify the emerging contaminant(s), particularly the CCL contaminants, that can be analyzed with the drinking water analytical method. CCL 5 contaminants are listed in Exhibits 1–5 of this notice and at <https://www.federalregister.gov/documents/2022/11/14/2022-23963/drinking-water-contaminant-candidate-list-5-final>.
4. Specify method performance information, such as sensitivity, selectivity, accuracy, and precision attainable for the contaminant(s). Describe the degree to which the method performance has been validated; the latter is important for any method being considered by the EPA for UCMR or other purposes. Guidelines for analytical method validation are described by the EPA Forum on Environmental Measurement (FEM) in documents available through the FEM website (USEPA, 2016b, c) at <https://www.epa.gov/measurements-modeling/method-validation-and-peer-review-policies-and-guidelines>.
5. To the extent possible, specify the cost, availability, and your laboratory’s capacity to run the method commercially.
6. Provide complete citations for referenced analytical methods, including author(s), title, journal (or other publication), and date.
7. Provide contact information for the principal investigator, when available.

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Jennifer L. McLain,

Director, Office of Ground Water and Drinking Water.

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 260, 261, and 270

[EPA-HQ-OLEM-2023-0085; FRL-9247-01-OLEM]

RIN 2050-AH27

Definition of Hazardous Waste Applicable to Corrective Action for Releases From Solid Waste Management Units

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: This proposed rule would amend the definition of hazardous waste applicable to corrective action to address releases from solid waste management units at RCRA-permitted treatment, storage, and disposal facilities and make related conforming amendments, thereby providing clear regulatory authority to fully implement the Resource Conservation and Recovery Act (RCRA) statutory requirement that permitted facilities conduct corrective action to address releases not only of substances listed or identified as hazardous waste in the regulations but of any substance that meets the statutory definition of hazardous waste. The proposed rule would also provide notice of EPA's interpretation that the statutory definition of hazardous waste applies to

corrective action for releases from solid waste management units at permitted and interim status facilities.

DATES: Comments must be received on or before March 11, 2024.

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OLEM-2023-0085, by any of the following methods:

- *Federal eRulemaking Portal:* <https://www.regulations.gov/> (our preferred method). Follow the online instructions for submitting comments.
- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, RCRA Docket, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- *Hand Delivery/Courier:* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operations are 8:30 a.m.–4:30 p.m., Monday–Friday (except Federal Holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to <https://www.regulations.gov/>, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the “Public Participation” heading of the **SUPPLEMENTARY INFORMATION** section of this document.

Submit your comments, identified by Docket ID No. EPA-HQ-OLEM-2023-0085, at <https://www.regulations.gov> (our preferred method), or the other methods identified in the **ADDRESSES** section of this document. Once submitted, comments cannot be edited or removed from the docket. EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www.epa.gov/dockets/commenting-epa-dockets>.

FOR FURTHER INFORMATION CONTACT:

Barbara Foster, Program Information and Implementation Division, Office of Resource Conservation and Recovery (5303T) Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington DC, 20460, 202-566-0382, foster.barbara@epa.gov.

SUPPLEMENTARY INFORMATION:

I. Authority

These regulations are promulgated under the authority of sections 2002(a), 3004(u) and (v), and 3008(h) of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. 6912(a), 6924(u) and (v), and 6928(h).

II. Background

A. Overview of RCRA Corrective Action Requirements Applicable to Releases From Solid Waste Management Units

The 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) expanded EPA's authority to address releases of hazardous waste and constituents at RCRA treatment, storage, and disposal facilities.

Sections 3004(u) and (v) of RCRA, added to the statute by HSWA, provided for corrective action requirements at permitted facilities. Section 3004(u) directed EPA to require corrective action for “all releases of hazardous waste or constituents from any solid waste management unit” at permitted hazardous waste treatment, storage, or disposal facilities regardless of the time at which waste was placed in the units. Section 3004(v) directed EPA to require that corrective action be taken beyond facility boundaries where necessary to protect human health and the environment unless facility owners/operators demonstrate to the Agency's satisfaction that, despite their best efforts, they were unable to obtain the necessary permission to undertake off-site corrective action.

Section 3008(h), also added by HSWA, provided EPA authority to require corrective action for “a release of hazardous waste into the environment from a facility” authorized to operate under interim status.

B. Brief History of Regulatory Actions Implementing HSWA and Leading to This Proposed Rule

Prior to HSWA, regulatory requirements for corrective action to address releases of hazardous waste and constituents were limited in scope. The regulations in 40 CFR part 264 Subpart F imposed requirements on owners and